

DMSO NEWS

Volume 5 Number 4

Winter 2000

INSIDE ...



SEDRIS and ISO/IEC – 9

Director's Corner: Looking back at this year's successes – 2-3

Sims teach DoD med students to save lives – 4

SISO, SCS charter groups to look at 'Economics of Simulation' – 4

MSIAC assesses reachback support to Ulchi Focus Lens experiment – 4

CGF&BR conference set for May 15-17 in Norfolk – 5

HLA clears final hurdle on track to IEEE standard – 6

Marines develop HLA spec to support MAGTF training systems procurement – 7

EnviroFed demos realistic use of natural environment in simulations – 8

SEDRIS Technology Conference set for June 5-8 at Lake Tahoe – 8

EXCIMS asks for in-depth review of MSRR – 10

M&S University trains PfP planners, participants – 11

HLA MoA EXCIMS members sign MoA, Gansler approves on Nov. 3

By Robert John Mills
DMSO Programs and Integration
and Sherrel Mock
DMSO Public Affairs

The Department of Defense (DoD) High Level Architecture (HLA) for simulation received a major vote of support on Nov. 3, when Dr. Jacques Gansler, Under Secretary of Defense for Acquisition, Technology and Logistics, approved a memorandum of agreement (MoA) signed by members of the Department's Executive Council for Modeling and Simulation (EXCIMS).

"This agreement attests to the fact that the HLA has gained the Department's simulation stakeholders' acceptance and strong support through tried and proven technical performance, capability, maturity and potential," Gansler wrote. "Furthermore, the widespread adoption of (the) HLA is contributing not only to the military capability and readiness of U.S. forces, but also to a growing number of allied and friendly nations as well, laying a firm foundation for international interoperability.

See HLA MOA, p. 12

Nomination period for M&S Awards extended to Dec. 15

By Sherrel Mock
DMSO Public Affairs

The nomination period for the 2000 Department of Defense (DoD) Modeling and Simulation (M&S) Awards has been extended to Dec. 15. Awards will be presented May 30 during the 10th annual DMSO Industry Days.

PLEASE NOTE: DoD and Industry will submit to different locations. Detailed nomination procedures and forms for government nominees are available on the DMSO Web site at <http://www.dmsomil/awards/>. Industry applicants should go to the NTSA Web site at <http://www.ndia.org/forms/ntsa/nomform.htm>.

Awards will be presented in four categories for accomplishments during Fiscal Year 2000 Oct. 1, 1999 through Sept. 30. A winner — individual, team or organization — will be selected in each category. The first three categories consist of the M&S functional areas — training, analysis and acquisition. The fourth category, a cross-functional area, considers those broader endeavors that impact two or more of the functional areas.

The awards program, now in its third year, was initiated by the DMSO in 1998:

- to enhance M&S awareness throughout the DoD and
- to recognize excellence, innovation and achievement in advancing the "state of the art" of M&S and/or in contributing to interoperability and reuse in support of DoD M&S objectives.

This includes, but is not limited to, the development of standards and architectures; techniques and tools; synthetic environments; and new military applications.

All units, organizational elements and individuals — both civilian employees and active duty service members — of the DoD Components that are involved with the development and/or use of M&S are eligible.

For a list of the FY98 and FY99 award winners visit <http://www.dmsomil/awards/>.

For more information

For more information contact:

Larry Alexander
M&S Awards Project Lead
(703) 824-3404
lalexander@dmsomil



Director's Corner

By Colonel Wm. Forrest Crain, U.S. Army

"Looking back at this year's successes"

As we close out the year 2000 I'd like to take the opportunity to highlight some of the successes we've had in the DoD modeling and simulation (M&S) community over the past year. We've all been moving hard and fast to support the Warfighter and I don't want to overlook the good things that we've accomplished before we launch into the new year and millennium.

While I've broken out the list of successes below by DMSO division, let me emphasize that they were all team efforts with organizations across the M&S community. Participants ranged from leaders and managers to operators to the technical experts. There were times when the DMSO had the lead and others when we were supporting someone else. In either case it was a win for the community and the Warfighter.

"... let me emphasize that (our successes) were all team efforts with organizations across the M&S community ... There were times when the DMSO had the lead and others when we were supporting someone else. In either case it was a win for the community and the Warfighter."

ENTERPRISE DIVISION

High Level Architecture (HLA)

- **HLA MOA:** Members of the Executive Council for M&S (EXCIMS) signed the HLA Memorandum of Agreement (MOA) which was approved by Dr. Jacques Gansler, Under Secretary of Defense for Acquisition, Technology and Logistics, on Nov. 3.
- **IEEE:** The Institute of Electrical and Electronics Engineers (IEEE) approved the 1516 HLA Specifications in September.
- **JSIMS:** Supported the Joint Simulation System (JSIMS), to include integration, test and Run-Time Infrastructure (RTI) implementation.
- Supported a variety of HLA federations:
 - Army's Initial Brigade Experiment #7
 - Air Force's Distributed Mission Training (DMT) Testbed (Tasmanian Devil Federation)
 - Joint Experimentation (Pegasus Federation)
 - Environment Federation (EnviroFed)
 - Joint Strike Fighter's (JSF) Virtual Strike Warfare Environment (VSWE) #7. This was the JSF Program's first HLA event.
 - Joint Training Confederation (JTC).
 - Joint Simulation System (JSIMS) federate implementation events 1 through 3.

See **DIRECTOR'S CORNER**, p. 3

DMSO NEWS

Director, Defense Research and Engineering

Dr. Hans Mark

Deputy Director, Defense Research and Engineering

Dr. Delores M. Etter

Director, Defense Modeling and Simulation Office

COL Wm. Forrest Crain, USA

Deputy Director, DMSO

CAPT David C. Johnson, USN

Chief of Staff

Mr. Gary A. Yerace

Chief, Warfighter Requirements Division

LtCol Chris "Thumper" Hadinger, USMC

Chief, Concepts Application Division

Lt Col Eileen Bjorkman, USAF

Chief, Enterprise Division

Mr. Fred Hartman

Chief, S&T Initiatives Division

Mr. Philip S. Barry, PhD

Chief, Programs and Integration

Mr. David L. Cantrell

Chief, Financial Operations

Mr. Waverly Debraux

Editor

Mr. Sherrel W. Mock

Photographer

Mr. Steve W. Wilson

DMSO News is published quarterly by the Defense Modeling and Simulation Office, 1901 North Beauregard Street, Suite 500, Alexandria, Virginia 22311-1705 USA.

Views and opinions are not necessarily the official views of, nor endorsed by, the U.S. Government or the Department of Defense.

Direct comments or questions about the newsletter and requests to receive a hard copy subscription to the editor at the above address, via telephone at (703) 998-0660, or via e-mail at editor@dmsomil.



Electronic Versions of DMSO News

To receive an electronic copy of the **DMSO News**, send an e-mail request to

dmsomil-news-subscribe@dmsomil

DO NOT include a subject or message content, they will be ignored. Subscribers will receive a text version of the newsletter when it is published quarterly.

Current and archived newsletters are also available in .pdf format on the World Wide Web at <http://www.dmsomil/news/>.

Director's Corner

Continued from p. 2

Data

- **UOB:** The Unit Order of Battle (UOB) toolset was used as the gateway for authoritative forces data for the Defense Intelligence Agency (DIA) via the M&S Resource Repository (MSRR) node, the Joint Training System (JTS) via the Joint Training Information System (JTIMS), and the Army Digitization Office (ADO) via the Joint Common Database (JCDB).

- **FDMS DIF:** The Extensible Markup Language (XML)-based Functional Descriptions of the Mission Space (FDMS) Data Interchange Format (DIF) has been adopted as the information exchange mechanism for the DoD Command, Control, Communication, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) Arch Framework.

- **FDMS Library:** The library is the online repository for JSIMS and Joint Warfare System (JWARS) military operations knowledge base.

Integrated Natural Environment (INE)

- **SEDRIS ISO/IEC Standardization:** Submitted six Synthetic Environment Data Representation and Interchange Specification (SEDRIS) technology components for standardization through the International Organization for Standardization (ISO) and International Electrotechnical Commission (IEC). The third working draft of the Environmental Data Coding Specification (EDCS) and second working draft of the Spatial Reference Model (SRM) is under review.

- **SEDRIS Core Tools:** Completed one public and two limited releases of SEDRIS core tools.

- **INE Support:** Completed initial Integrated Natural Environment (INE) support — tools and datasets — to the JWARS, JSIMS, Air Force's Joint Expeditionary Forces Experiment (JEFX) 2000, Joint Forces Command (JFCOM) and Global Wargame 2000.

- **EnviroFed:** Demonstrated a prototype of the EnviroFed and completed Phase II of EnviroFed development.

Human Behavior Representation (HBR)

- Initiated the HBR/HLA testbed (Icarus Federation).
- Began an initiative to develop a common framework for HBR model development.
- Held a training, analysis and acquisition HBR needs workshop.

WARFIGHTER DIVISION

Verification, Validation and Accreditation (VV&A)

- **DoDI 5000.61:** Staffed the revised DoD Instruction (DODI) 5000.61.
- **RPG:** Distributed Build 1 of the Recommended Practices Guide (RPG) via the Internet.

- **NNAG SG60:** Completed the NATO Naval Armaments Group Subgroup 60 VV&A Report.

C4I-SIM

- **DII COE M&S TWG:** Established the Defense Information Infrastructure (DII) Common Operating Environment (COE) M&S Technical Working Group (TWG) which has begun to document requirements for use of M&S products within the DII COE.

- **Army C2 FOM:** Documentation of the data elements based upon multiple Army command and control systems (C2) within a single Federation Object Model (FOM).

- **JTLS-NATO Federation:** Successful use of the Joint Theater Level Simulation JTLS-NATO federation at NATO exercise "Disciplined Warrior" in Izmir, Turkey in March.

Program Support

- **DMT:** Developed and demonstrated two DMT federations involving high-performance cockpit simulators using the HLA.

- **Pegasus Federation:** Completed analysis runs at JFCOM J9 involving a federation of models that is conducting experimentation on Suppression of Enemy Air Defense (SEAD) missions.

- **JTC:** Supported JTC test and exercises that demonstrated the successful application of the HLA within this training environment.

Requirements

- **CINC M&S Needs:** The M&S Information Analysis Center (MSIAC) surveyed and documented Commander-in-Chief (CINC) M&S needs in coordination with the Warfighter Division.

CONCEPTS APPLICATION DIVISION

M&S Resource Repository (MSRR)

- Revitalized the Board of Directors to a meaningful, effective group.
- Revised the DMSO MSRR node so that it simultaneously searches itself, plus the Army, Navy, Air Force, C4ISR, Ballistic Missile Defense Organization (BMDO), and DMSO Authoritative Data Sources (ADS) nodes.

- Doubled the number of items catalogued in the MSRR.

M&S Education Program

- Presented M&S education products to over 2,000 people at DMSO-sponsored and other agency-sponsored courses and conferences. Presented courses at 30 different DoD agencies and locations.

- Developed new courses: "M&S in Support of Research, Development and Acquisition (RDA)" and "Medical M&S Course."

- Developed new M&S Staff Officer Course (MSSOC) lessons — "M&S in Training, Analysis, Acquisition, Experimentation, and Communications" — to further address the needs of the M&S community.

- Laid the groundwork for 2001 and beyond: Developed a long range plan for M&S education, brought on new team members with the right skill sets and initiated the DMSO's first venture into the advanced distributed learning (ADL) environment.

SCIENCE AND TECHNOLOGY (S&T) DIVISION

- **FY00 Projects Leveraged 450 Percent:** Service and joint M&S offices joined the DMSO in funding 18 S&T projects for Fiscal Year 2000 for a total of \$19.278 million.

- **RFP for FY01 Projects:** Released a Request for Proposals (RFP) in October for the FY 2001 S&T Initiatives Program. The RFP was based on input from over 50 academic, industry and government organizations in response to a request for information (RFI) on advanced M&S technologies supporting acquisition, analysis and training simulation applications.

- **Service Academies:** Worked with the services and their respective academies to promote M&S education efforts in each school in order to begin laying a foundation of M&S knowledge and skills in the officer corps at the earliest opportunity.

This isn't an all inclusive list, but I think you'll agree we as a community have had quite a year. These successes are the foundation for what we'll accomplish next year and beyond. Many thanks to those who helped us improve our support to the Warfighter and to those who allowed us to contribute to their programs. We all benefit.

Respectfully,
Forrest



Lead, integrate & leverage M&S for the Warfighter

Simulations teach DoD med students how to save lives

By Rudi Williams
American Forces Press Service

FOREST GLEN, Md., Nov. 17, 2000 — Army Dr. (Col.) Christoph Kaufmann said the goal of DoD's new National Capital Area Medical Simulation Center here can be summed up in three words: "to save lives."

Surgical director Kaufmann said several medical schools have been using simulation centers with patient "actors" for about 10 years, but he called the DoD center unique. What's new, he noted, is that three state-of-the-art components are under one roof — virtual reality technology, computerized mannequin simulators and the patient "actors."

"We can push the student to the point of failure. We can let the student make that fatal mistake," the surgeon said. "Lessons learned through failure are not forgotten. When you make a mistake, you remember."

"Simulators allow us to train at the fringes of medical treatment," Kaufmann pointed out. "Students can ... to take risks they simply wouldn't be allowed to take with real patients."

The Uniformed Services University of the Health Sciences at the National Naval Medical Center in Bethesda, Md., opened the center in September 1999. Located at Walter Reed Army Medical Center Annex at Forest Glen, Md., the facility will train more than 500 medical students from all the services each year.

The school's medical students are not the only ones trained at the center. Nurses, residents, fellows, and even faculty have made use of simulation center resources.

"As the technology becomes more sophisticated, we'll be interested in teaching attending physicians," the senior surgeon said.

Students learning to be doctors rotate through various emergency medical scenarios at the center. For example, the budding doctors may walk into a clinical exam room and find a patient "actor" curled up on the exam table simulating a specific disease state. The student has to diagnose and prescribe treatment for the condition. Their skills are also tested in a mock operating room and a virtual reality lab.

"We can train on the fringes of medicine using this operating room with the digitized mannequin and virtual reality tools," Kaufmann said. "We can push our medical students and residents beyond what would be otherwise safe — without hurting real patients."

"This experience has been great in teaching us some basic skills that we'll need in the hospital," Third-year medical student Navy Ensign Lisa Peterson said. "And we're learning in a stress-free environment!"

See **MEDICAL SIMULATIONS**, p. 5

MSIAC assesses reachback support to Ulchi Focus Lens

Each year, the Commander-in-Chief (CINC) of the United Nations Command/Combined Forces Command conducts the world's largest computer aided exercise, Ulchi Focus Lens (UFL), to prepare US and Republic of Korea forces to defend the peninsula. This year, the CINC conducted an experiment during UFL to see if his command could access stateside analysts and assets to help CFC during wartime operations. He asked the Modeling and Simulation Information Analysis Center (MSIAC) to conduct an assessment of the experiment.

The MSIAC provided an independent review of the process, thus saving the UNC/CFC staff from having to do it while they ran an exercise involving 60,000 troops. The evaluation focused on the process of obtaining the analytical support from the Korean Theater, and identified opportunities for exploitation as well as some areas that require more work.

During the exercise, a MSIAC analyst deployed to the CFC in Korea while others observed the organizations in the states providing the analytical support to the CINC. These organizations included a Logicon facility in Arlington, the Center for Army Analysis, the Defense Threat Reduction Agency and the Joint Warfighter Analysis Center. The findings were presented to the Joint Chiefs of Staff, J-8.

According to U.S. Forces Korea officials the "the MSIAC reflected the highest standards of professionalism and dedication in accomplishing every task in a superb manner. As part of the CONUS to CFC Reachback effort the expertise and advice provided by the MSIAC will significantly enhance our warfighting planning capabilities."

For more information about the MSIAC visit <http://www.msiac.dmsmo.mil/>.

SISO, SCS charter groups to look at 'Economics of Simulation'

By Dr. Steve Gordon
Air Force Agency for Modeling and Simulation

"What value do I receive from spending my next marginal dollar on simulation?"

The advent of more and more visible and expensive modeling and simulation enterprises invites explicit consideration of the cost, value and return-on-investment in the narrowest terms and, more broadly, of the economics of modeling and simulation as a market sector.

Both the Simulation Interoperability and Standards Organization (SISO) and the Society for Computer Simulation (SCS) have chartered groups to pursue a better understanding of this topic.

The SISO established the "Economics of Simulation Study Group" at the Spring 2000 SISO meeting in March, and SCS established a Technical Chapter on the "Economics of Modeling and Simulation" at the 2000 Summer Computer Simulation Conference in July. The SISO and SCS groups were formed to establish the general parameters of the topic, develop a provisional market model, draft terminology and taxonomy of concepts, make a data call for readily available empirical evidence, document a

business case and identify best (most effective) practices relevant to this topic.

Both "Economics of Simulation" groups are using a Data Compilation Work Group to locate historical articles and presentations related to the economics of simulation and to make data calls. Articles, presentations, and other empirical evidence are being filed on a central Web site at http://www.msiac.dmsmo.mil/ia/siso_docs.asp. The Data Compilation Work Group continues to welcome submissions of empirical evidence for the economics of simulation. Please submit documents by forwarding them as e-mail attachments to Marc Erlandson at merlandson@msiac.dmsmo.mil and Tom Scrivener at tscriven@msiac.dmsmo.mil.

To join either Data Compilation Work Group or ask about the kinds of data being solicited, contact Jackie Steele at Jackie.Steele@smdc.army.mil or (256) 955-3917 for SCS, or Dr. Steve Gordon at steve.gordon@afams.af.mil or (407) 208-5776 for SISO.

For more information, or to join the SCS or SISO groups, contact Bill Waite at BWaite@AEgisTG.com or (256) 922-0802, or Pat Cannon at PCannon@AEgisTG.com or (505) 792-4743.

CGF&BR conference set for May 15-17 in Norfolk

By Dr. Ruth P. Willis
CGF Program Committee Chair

The 10th Conference on Computer Generated Forces and Behavioral Representation (CGF&BR) will be held May 15-17 at the Norfolk Waterside Marriott in Norfolk, Va.

The call for papers is currently under way. See details below for abstract and paper submission.

The challenge before the CGF community is to connect knowledge and theory of human behavior with robust modeling technologies to deliver computer representations that act realistically without human intervention.

The annual CGF&BR conference provides a forum to address the full scope of human behavior modeling across the spectrum of simulation application areas extending from training and mission rehearsal to analysis, acquisition, planning and experimentation for both military and non-military environments. The conference enables modeling and simulation application users and technical communities to meet, to share ideas and experiences, and to identify gaps in current capabilities, as well as highlight promising technologies.

The conference is sponsored by the Defense Advanced Research Projects Agency, Defense Modeling and Simulation Office, the Army's Simulation Training and Instrumentation Command, Office of Naval Research, Air Force Research Laboratory and the National Air and Space Administration in affiliation with the Simulation Interoperability Standards Organization, the International Standards Activity Group and the United Kingdom's Defence Evaluation and Research Agency.

Abstract submission information

The CGF&BR invites papers and panel discussions on issues affecting how individuals, groups, teams and organizations are represented in models and simulations. Abstracts are reviewed and selected for consideration by the Conference Committee. Papers may be selected for presentation or for publication only. Individuals who wish to submit abstracts should review the abstract submission form posted at <http://www.sisostds.org/cgf-br/10th/index.htm>.

For more information about the submission process or if unable to submit to the web site, contact Pat Burgess at pburgess@ist.ucf.edu, phone (407) 658-5031 or fax (407) 658-5059.

Key dates

To produce materials in a timely manner, the following dates must be adhered to:

- Jan. 12 -- Abstracts due
- March 23 -- Papers due in electronic and camera-ready form
- May 11 -- Presentations due in electronic form
- May 15 -- 2001 CGF&BR conference opens

Call for papers information

Topics of interest for the 10th conference include, but are not limited to, the following:

- Modeling strategies for cognitive and physical performance
 - Intelligent agents
 - Neural networks
 - Intelligent reasoning systems
 - Evolutionary and genetic programming approaches
 - Integrative or hybrid architectures
 - Behavior moderators
 - Novel architectures and knowledge representation schemes
- Modeling and representational issues for
 - Training and Mission Rehearsal
 - C4ISR
 - Analysis and Planning
 - Acquisition
 - Experimentation
 - Missions other than War, e.g., humanitarian, peacekeeping
 - Medicine
 - Education
 - Control of autonomous systems
 - Interactive gaming
- Increasing the usability of Computer Generated Forces
 - Knowledge acquisition
 - Scenario generation
 - Use of automation
 - Performance evaluation
 - Application of COTS
- Verification and Validation of Human Behavior Models
- Metrics for Human Behavior and Performance Modeling

Registration

Registration information is available at the CGF&BR web site at <http://www.sisostds.org/cgf-br/10th/index.htm>. The conference will be held at the Norfolk Waterside Marriott Hotel, Norfolk, Virginia. The conference rate is \$99/night (plus tax). To make a hotel reservation, contact ITCMS at (800) 810-4333 (U.S. or Canada) or (732) 562-6826 (outside U.S. and Canada), fax your request to (732) 981-1203, or email it to CGF@ieee.org. Hotel reservation forms will be posted on the CGF&BR web site along with workshop reservation materials.

Medical simulations

Continued from p. 4

The National Board of Medical Examiners has adopted the use of patient "actors", so that by 2002, they'll be used to test every graduating medical student's skills in diagnosing basic medical problems, he said. The virtual reality lab and the operating room are tools that allow instructors to deviate from traditional ways of teaching medical specialties. For example, he said, students over the centuries learned surgery through an apprenticeship.

Simulators are a big improvement in teaching because students today are trained by opportunity, the colonel said. "We're only exposed to what we're exposed to," he noted. "Using simulators helps us ensure that all the breadth of the anatomy and surgical procedures are being taught during the course of a residency." Further, the patients' interests rightfully come first and medical education comes second, he added.

"We have to keep the student from going across the threshold of hurting the patient," Kaufmann said.

Simulation is still in its infancy, "about at the Wright Brothers airplane stage," Kaufmann said. "But there are some sophisticated simulators that are used in sewing together blood vessels or intestines." Some of the simulators today provide a realistic picture of the anatomy that students can view in either 3-D or on a 2-D monitor, like a TV screen.

"The TV monitor-type virtual reality application is useful for teaching medical students, starting in IV (intravenous injection) and diagnostic procedures," Kaufmann said. "We've developed a couple of these simulators here."

He said the center has 12 clinical exam rooms for simulated patients, a computer lab with 16 computers for distance learning and for high-stakes education and high-stakes testing, such as the national board examination.

"The tools we have today require the individual to be present here to use them," Kaufmann said. "In the future, we see these applications being used with distance learning technology."

HLA clears final hurdle on track to IEEE standardization

By Sherrel Mock
DMSO Public Affairs

The DoD High Level Architecture (HLA) for simulation cleared the final hurdle to becoming an IEEE standard on Sept. 21. The Standards Board of the Institute of Electrical and Electronics Engineers (IEEE) voted to accept the HLA as an international standard.

The Standards Board "formality" vote followed a unanimous approval by the subordinate Review Committee (RevCom) on Sept. 20 at IEEE headquarters in New Jersey.

Phil Zimmerman, HLA program manager for the Defense Modeling and Simulation Office (DMSO), followed the progress of the IEEE review closely. She and several members of the team that worked to bring about the IEEE standardization attended the RevCom meeting. "We attended (the meeting) to ensure that we would be available to immediately answer any issues or questions that might come up," she said.

"We were given an additional piece of good news at the RevCom meeting," Zimmerman said. "We were able to meet with the IEEE editor in charge of our specifications. She indicated that it's likely the specifications will be ready for publication by the end of this calendar year – much sooner than we had anticipated. This is largely due to our up-front efforts in formatting the documents correctly, the Ballot Resolution Committee (BRC) chairs' diligence in entering changes, and our submission of suggested edits to them."

The new HLA standard for modeling and simulation (M&S) consists of three specifications:

- 1516 – *Framework and Rules*
- 1516.1 – *Federate Interface Specification, and*
- 1516.2 – *Object Model Template (OMT) Specification*

"The IEEE standardization is not the end of the process for the DoD," Zimmerman said. "Before the Department can be assured that the 1516 specifications are useful products for the warfighter, a Runtime Infrastructure (RTI) must be built that operates at least as well as the current RTI built to the 1.3 HLA specifications. And it must be verified. In addition, DMSO-produced tools will also be migrated to the 1516 specifications. These additional steps, beyond IEEE standardization, are in keeping with the tradition of the HLA program to build the first prototype of the software and verify its usefulness to the community, and correctness in terms of the specifications.

"This additional work, which began before the IEEE acceptance, is currently underway," she added. "We expect to be completed by the middle of Fiscal Year '01.

"The approval of these three specifications is the culmination of nearly three years of effort, in just the

IEEE standardization process alone," Zimmerman said. "As the specifications went through the two ballots, over 700 comments were received, scrutinized and incorporated when appropriate. Over 80 people participated in each ballot group, and at least a dozen in the Ballot Resolution Committees. In addition, there were four working group meetings prior to the standard submission. It was a tremendous effort individually, and also a tremendous effort in cooperation among all involved."

One of the DoD's M&S objectives is to establish a common technical framework (CTF) to facilitate the interoperability of all types of models and simulations among themselves and with Command, Control, Communications, Computers and Intelligence (C4I)

systems within the Department. The HLA is the cornerstone of that effort. Having it accepted as an international standard is important as well.

As the U.S. and other nations continue to cooperate in multinational coalitions supporting peacekeeping, humanitarian aid, natural disaster relief, and regional security efforts, interoperability is

essential for them to work and train together. International simulation standards foster and support interoperability because they provide the capability for nations to build simulations that not only meet their own internal needs, but allow them to operate economically with partner nations as well. Forces can train together for a contingency in a synthetic environment from their home sites at operational, logistics and environmental costs below those inherent in the transport of troops and equipment to a central exercise area somewhere around the globe.

Internationally, the HLA has also been accepted by NATO as the standard for simulations used within the Alliance, and in November 1998 was adopted as an international standard by the Object Management Group (OMG).



• HLA Help Desk •



Have a question about the HLA? Send your query to the HLA Help Desk at hla@dmso.mil. We'll get you an answer.

Marines develop HLA interoperability specifications to support MAGTF training system procurement

By Christina Bouwens
and Steve Zeswitz

The Marine Corps has embarked on a multi-phase program to develop a Department of Defense (DoD) High Level Architecture (HLA)-focused interoperability specification for Marine Corps ground and air training simulators *in advance of the procurement of the systems*.

This unique federation development activity is focused on providing sufficient interoperability information to facilitate the development of future training systems that have operational requirements for interoperability.

Two primary goals

There are two primary goals in this Marine Corps effort:

- Develop an interoperability specification for several planned simulator procurements. This interoperability specification will include, among other things, an HLA-compliant Federation Object Model (FOM) which will define the objects and interactions to be supported by the Marine Air Ground Task Force (MAGTF) federation's participating federates.

- Demonstrate the applicability of the specification to support simulation-based training in a collective, combined-arms training environment. This second goal is critical. The demonstration is not to see if things can be connected together – such connectivity has been demonstrated numerous times. The focus of the demonstration is to evaluate the ability of the interoperable environment to support combined-arms training that prepares Marines for live training and operations.

Technical approach

The Marine Corps approach for developing the interoperability specification uses the Federation Development and Execution Process (FEDEP) as a guideline for the development of the MAGTF FOM and the overall interoperability specification. This approach ensures that the resulting products will support identified requirements and address all aspects of federation development and planning.

A key accompanying document called the Federation Agreements and Integration Document (FAID) provides detailed information for implementing the FOM consistently across simulations. It provides examples concerning various interactions and object representations. It also has a section

that addresses non-HLA interoperability considerations for federation implementation.

Three views of a federation

The conceptual analysis addresses three different types of requirements: the *Warfighter view*, the *Trainer view*, and the *Technical view*. The Warfighter view is focused on the objects and interactions that are required to support the battle environment represented by the scenario. It includes the vehicles, Marines and other objects along with interactions such as fire, detonation and communications. The Trainer view is focused on HLA requirements that are based on information that needs to be collected during the federation execution to support evaluation of the training, after action review, etc. The Technical view includes FOM components based on federates that may be present in the federation that support the execution of the federation but do not represent Warfighter view objects. This would include data logging devices, plan view displays and federation management tools.

Progress to date

The first two phases of the project are complete.

During Phase 1 an initial draft FOM based on several existing FOMs (which include RPR FOM 1.0 draft 2, Environment Federation FOM, Human Starter FOM, C4I FOM and the Tasmanian Devil FOM) was developed along with a first version of the Conceptual Model and FAID.

Phase 2 produced revisions for the Conceptual Model, FOM and FAID. In addition, four options for demonstrating the FOM were developed and analyzed, with selection of a demonstration approach that focuses on integrating the training environment with selected Advanced Distributed Learning (ADL) technologies to achieve training support not previously demonstrated using the HLA.

Future work

The project will continue its development of details for the Phase V demonstration scheduled for second quarter FY 02. The MAGTF FOM, FAID and conceptual model will continue to evolve to support the unique requirements of a MAGTF collective training environment.

Acknowledgements

This effort is sponsored by the USMC Training and Education Command and the

Office of Naval Research. It is managed by the Naval Air Warfare Center Training Systems Division and is performed by Science Applications International Corporation with technical support from the MITRE Corporation.

For more info

For more information contact Christina Bouwens at bouwensc@saic.com or (407) 207-2742, or Steve Zeswitz at zeswitzsr@lejeune.usmc.mil or (910) 451-0507.

STC

Continued from p. 8

[SEDRIS] Core Team, developers, and users, which for me has been very useful. Well done!" said Simon Ahlberg, Swedish Defence Research Establishment Linköping, in Östergötland, Sweden.

"The conference was extremely valuable to me as a newcomer to SEDRIS," said Jacqueline Bratten, U.S. National Imagery and Mapping Agency, at Fort Leavenworth,



Kansas. "It allowed me to gain a high-level understanding of SEDRIS technology, to network with other participants in the field, and to choose specific topics of high interest to me. I got what I needed, rolled up in one event."

"(There was) lot's to see, but (I wasn't) able to see it all," said Rob Kaplowitz, U.S. Army Tank-Automotive Command, in Warren, Michigan. "I'm looking forward to the 2001 SEDRIS [Technology] Conference."

The STC is a premier event for environmental database professionals who want to discover the latest in environmental technology, interact with practitioners in the field, learn how to use SEDRIS technology components and see the latest SEDRIS applications and utilities.

EnviroFed demonstrates realistic use of natural environment in simulations

By Juan A. Perez
INE Program Manager
and Robert Lutz
DMSO Environment Integration and Experimentation

On November 1, the Defense Modeling and Simulation Office (DMSO) conducted a demonstration of the Second Phase of the Environment Federation (EnviroFed II) Project. The demonstration was held at the Joint Precision Strike Demonstration (JPSD) Integration and Evaluation Center (IEC) at the U.S. Army Topographic Engineering Center, Alexandria, Va.

The EnviroFed is a DMSO project demonstrating the linking of existing environmental applications and data services through leveraging open architectures and industry standards. The federation illustrates the benefits of combining the Department of Defense (DoD) High Level Architecture (HLA) and for simulation and Synthetic Environment Data Representation and Interchange Specification (SEDRIS) technologies in run-time applications.

The EnviroFed uses HLA Run-Time Infrastructure (RTI) version 1.3NG and SEDRIS 2.5. The SEDRIS Data Representation Model and Environmental Data Coding Specification are the basis for environmental object definitions in the HLA Federation Object Model (FOM). The EnviroFed was developed using the methodology described in the HLA Federation Development and Execution Process (FEDEP).

The EnviroFed consists of the Joint Semi Automated Forces (JSF) combat simulation; the Modular Stealth (ModStealth) three-dimensional viewer; the Dynamic Terrain simulation (DTSim); the Ocean, Atmosphere and Space Environmental Services (OASES) system that serves the weather and ocean data to the runtime federation; and the hlaResults data collection, playback and analysis tool.

Part of the EnviroFed II effort was to rehost the software that previously ran on high-performance workstations onto low-cost computers making transition of the components more affordable to the modeling and simulation community. With the exception of hlaResults, the EnviroFed federates are based on software development products of the Defense Advanced Research Projects Agency's (DARPA) Synthetic Theater Of War (STOW) Advanced Concepts Technology Demonstration (ACTD). Versions of most of these federates are in use by Joint Forces Command in joint experimentation and by the U.S. Naval Warfare Development Command's Maritime Battle Center in fleet battle experiments.

A relatively simple joint task force military scenario consisting of approximately 100 entities was reused for the EnviroFed II demonstration. Components of the modularized OASES system provided the weather to subscribing federates. The capabilities of the federation were improved by using a hydrologic model that responds to the weather information to provide appropriate characteristics for soil moisture and strength. The JSF simulation provided behaviors for ground force entities to react appropriately to the updated soil conditions (faster or slower movement across the terrain).

The primary metrics used to assess the impact of the environment on the scenario were number of entities destroyed and time to reach the objective. Initial evaluation of the results showed that a much longer period of time was required to achieve the key objective of the operation when rain was present, and that the effects of wind on obscuration smoke resulted in higher losses on the side of the attacking force. While these results demonstrated more realistic effect

of the environment on military scenarios than those previously achieved, additional work is needed in the area of SAF behaviors to assess the impact of other environmental conditions on the simulation.

DoD community participants at the demonstration included approximately 100 attendees — managers, developers and data providers — from services and agencies and supporting industry. Several of the attendees were interested in reusing components of the EnviroFed Project.

Next year's EnviroFed activities are primarily focused on improving the reusability of its products and transitioning its technologies to customer programs. This includes such tasks as requirements collection, improving user documentation, reconciling the EnviroFed FOM with the latest release of SEDRIS, and exercising new DMSO Integrated Natural Environment program products and processes in contexts of interest to client programs.

Juan A. Pérez is the Program Manager for the DMSO's Integrated Natural Environment Program; Robert R. Lutz is the Technology Area Lead for DMSO Environment Integration and Experimentation.

SEDRIS Technology Conference set for June 5-8 at Lake Tahoe

The Synthetic Environment Data Representation and Interchange Specification (SEDRIS) Technology Conference (STC) will be held at Lake Tahoe, Nevada, June 5-8.

The conference is the fourth in a continuing series of premier educational and technology conferences designed to introduce attendees to environmental representation and data interchange, and more specifically, to SEDRIS and how it is used. The conference is aimed at the environmental data provider and user communities. It also serves to update those already familiar with SEDRIS on the latest in SEDRIS technologies.

The conference includes a series of tutorials, a plenary session, and panels and presentations covering a wide spectrum of environmental topics that include, among others, the five core SEDRIS technologies. Demonstrations and exhibits on the latest in SEDRIS and associated environmental technologies complement the conference sessions.

Conference details and registration process will be published through various media, organization reflectors and at the SEDRIS Web site at <http://www.sedris.org/>.

Who should attend

The STC is for systems engineers, software engineers, environmental modelers, project managers, policy makers, and anyone interested in learning more about SEDRIS, SEDRIS technologies, its application and utilities, as well as the general topics of environmental data representation, database generation, and interchange.

"Excellent tutorials, covering almost everything. Since the conference is relatively small, it's easy to get in touch with the

See STC, p. 7

Formal standards key part of SEDRIS plan

Establishing formal standards is a key part of the development plan for the Synthetic Environment Data Representation and Interchange Specification (SEDRIS). Pursuing international standardization will help ensure a broad base for applying SEDRIS technologies and create interoperability opportunities in multiple national and international markets.

In October 1999, the SEDRIS Project began the process of establishing international standards through the combined International Organization for Standardization (ISO) and International Electrotechnical Commission (IEC).



SEDRIS technologies have been assembled into the following specification and language binding standard development efforts under the following numbers and titles:

SEDRIS	ISO/IEC 18023
Part 1: Functional Specification	ISO/IEC 18023-1
Part 2: Transmittal Format	ISO/IEC 18023-2
Part 3: File Format Binary Encoding	ISO/IEC 18023-3
SEDRIS Language Bindings	ISO/IEC 18024
Part 4: ISO C	ISO/IEC 18024-4
Environmental Data Coding Specification (EDCS)	ISO/IEC 18025
Spatial Reference Model (SRM)	ISO/IEC 18026
EDCS Language Bindings	ISO/IEC 1xxxx
Part 4: ISO C	ISO/IEC 1xxxx-4
SRM Language Bindings	ISO/IEC 1xxxy
Part 4: ISO C	ISO/IEC 1xxxy-4

The 1xxx and 1xxxy numbers are placeholders for the additional language binding standards that have been nominated and are currently in the approval process.

The ISO/IEC Joint Technical Committee 1 (Information Technology) assigned the standards development work to its Subcommittee 24 (Computer Graphics and Image Processing) which created Working Group 8 (Environmental Representation) to be the focal point for SEDRIS standardization. Developing formal standards is insufficient to realize all the interoperability potential that SEDRIS could provide. Establishing tested implementations, guidance and education documents and data coding scheme mapping documents are also required.

Toward this end, and to formally participate in standards development, the Simulation Interoperability Standards Organization (SISO)

has initially established two Product Development Groups (PDGs). These PDGs are focused respectively on the EDCS and SRM developments. The PDGs have made input into the ISO/IEC process through comments on the subject standards working drafts, which were forwarded through the American National Standards Institute (ANSI) National Committee for Information Technology Standardization (NCITS). The SISO has become a member of NCITS Committee H3 (Computer Graphics and Image Processing) to directly participate in the SEDRIS work.

The figure shown below depicts the relationship of the ISO/IEC standards, SISO efforts, and the activities of the SEDRIS Project team. ISO/IEC's role is to develop and establish standards. It does not involve itself in implementations. One of the SISO's goals is to promote interoperability. SISO accomplishes this by promoting and providing standard implementations such as coordinate conversion and transformation modules (the SRM conversion software), environmental data codes and dictionaries (the EDCS database and interfaces). It also provides reports, mapping documents, or information important to the SISO membership and its activities. The bottom piece consists of the growing number of tools, utilities, and applications developed and maintained by the SEDRIS core team and the SEDRIS Associates.

How to Get Involved

Individuals can participate in the SEDRIS Standards and Supporting Implementation development effort by participating in the SISO PDGs. Individuals and / or their parent organizations can also participate directly in international standards development through their national standards body, for the U.S. this is ANSI. SISO International Standards Advisory Group members are encouraged to participate in the PDGs as well as seek out involvement in the SEDRIS work through national standards body activities. This was strongly encouraged at recent Simulation Interoperability Workshop ISAG meeting.

Join the PDGs by signing up to the following reflectors:

- SAC-PDG-EDCS@itcenter.org
- SAC-PDG-SRM@itcenter.org

To learn more about the ISO/IEC, SISO PDG, and SEDRIS processes visit the following websites:

- ISO/IEC JTC 1/SC 24/ WG 8: <http://www.sedris.org/wg8home/index.htm>
- ISO/IEC JTC 1/ SC 24: <http://www.bsi.org.uk/sc24/>
- ISO/IEC JTC 1: <http://www.jtc1.org/>
- SISO EDCS PDG: <http://www.sisostds.org/stdsdev/edcs/index.htm>
- SISO SRM PDG: <http://www.sisostds.org/stdsdev/srm/index.htm>
- SEDRIS Organization: <http://www.sedris.org>

The following general timeline applies to the establishment of SEDRIS technologies as international standards.

2 nd Quarter 2002	18025	EDCS
3 rd Quarter 2002	1xxxx-4	EDCS Language Binding ISO C
4 th Quarter 2002	18023-1	SEDRIS Part 1, Functional Specification
1 st Quarter 2003	18026	SRM
1 st Quarter 2003	18024-4	SEDRIS Language Binding ISO C
3 rd Quarter 2003	18023-2	SEDRIS Part 2, Transmittal Format
3 rd Quarter 2003	18023-3	SEDRIS Part 3, File Format Binary Encoding
3 rd Quarter 2003	1xxxx-4	SRM Language Binding ISO C

It is important to note that SEDRIS technology is mature and in use today and available for application concurrent with completion of the formal standardization process. Activities are underway to formally reference the ISO/IEC SEDRIS standards in the Joint Technical Architecture and in DoD Procurement Guidelines.

EXCIMS asks for in-depth review of MSRR structure, development of integrated plan

By Lt Col Eileen Bjorkman, U.S. Air Force
Chair, MSRR Board of Directors

In September, the Department of Defense (DoD) Executive Council for Modeling and Simulation (EXCIMS) tasked the Defense Modeling and Simulation Office (DMSO) to conduct an in-depth review of the current Modeling and Simulation Resource Repository (MSRR) structure and develop an integrated plan for future MSRR work. The end goal is to find ways to better leverage the collective investments made by individual military services and DoD agencies in their MSRR nodes.

The DoD-wide MSRR was established in response to Sub-objective 5-3 in the DoD Modeling and Simulation Master Plan (MSMP) to "provide a repository system to facilitate developer and end-user access to modeling and simulation (M&S) resources."

Specifically, the MSMP objective is to "... efficiently and effectively provide the community with timely, verified, and validated data, metadata, algorithms, models, simulations, and tools. The MSRRs should also provide background information, e.g., model assumptions; source of data; classification of data; range of validity of algorithms; verification, validation and accreditation (VV&A); and/or verification, validation and certification (VV&C) history. This will promote reuse and sharing of M&S resources and will improve credibility of M&S results. The repository will provide tools for

configuration management and for accessing, browsing and retrieving M&S resources."

The MSRR developed as a federation of MSRR nodes run by the services and other DoD Agencies with the DMSO providing an overall coordination and oversight function. Each MSRR node has a representative on the MSRR Board of Directors (BoD).

The MSRR Review Team working the EXCIMS tasker includes all members of the MSRR BoD and a representative from the Office of the Secretary of Defense for Program Analysis and Evaluation (OSD/PA&E). The first meeting was held in Orlando Nov. 13-14. During that meeting, the team reviewed the existing MSRR structure and developed a draft integrated plan that identifies who is doing what, establishes priorities, eliminates unneeded redundancies, identifies potential additions to the MSRR structure and identifies who is tasked to do what.

The Review Team is on a fairly tight timeline to finish the integrated plan in order to present it to the EXCIMS in January.

The MSRR Board of Directors and I look forward to this opportunity to potentially improve the service we provide to the M&S community while finding ways to lower the cost of doing so.

Lt Col Bjorkman is chief of the DMSO's Concepts Applications Division.

DMSO MSRR accepting commercial resources

By Gary L. Misch
MSRR Project Lead

The Defense Modeling and Simulation Office's (DMSO) Modeling and Simulation Resource Repository (MSRR) node at <http://www.msrr.dmsi.mil/> is now accepting commercial resource listings.

Commercial activities wishing to list their resources should contact Gary Misch at gl@msiac.dmsi.mil or the Modeling and Simulation Information Analysis Center (MSIAC) help desk at <http://www.msiac.dmsi.mil/helpdesk/>.

Listings are welcome for models, simulations, modeling and simulation (M&S) related tools, databases and other resources of interest to the Department of Defense (DoD) M&S community. Listings are not limited to resources that have a current, direct application within the DoD.

The MSRR also supports an increased number of resource types and an enhanced base of information on each resource.

The MSRR program is a cooperative effort among the DMSO; Army; Navy; Air Force; Defense Intelligence Agency; Ballistic Missile Defense Organization; the Assistant Secretary of Defense for Command, Control and Communication's (ASD[C3I]) Command, Control, Communication, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) Decision Support Center,

and the MSIAC. The program seeks to list all resources of interest to the M&S community within the appropriate sponsor's repository, in order to promote cost reduction and reuse within DoD. Users of the DMSO MSRR can currently search the Army, Navy, and Air Force systems, simultaneously with a search of the DMSO system. Other systems offer similar interoperable features.

The Army MSRR is undergoing a major renovation in its attempts to provide accurate, timely, and useful information. To that end, it is requested that all those involved in major Army M&S programs review the Army MSRR and provide updates as necessary. All updates to the Army MSRR are welcome. Updates should be directly inputted by registration to the Army MSRR.

The Air Force MSRR at <http://afmsrr.afams.af.mil/> continues to provide searchable resources to an ever-expanding Air Force and DoD customer base. Resources have increased by over 50 percent in the past year, and continue to grow at the same pace. Several new resource categories have been added in the past nine months, including facilities, authoritative data sources, technology research and studies. Categories planned for the next three months include wargaming, lessons learned, and events (for future calendaring efforts).

See **COMMERCIAL RESOURCES**, p. 11

M&S University trains planners, participants in preparation for Partnership for Peace computer-assisted exercise in '01,

By Morris Decker
MSIAC M&S University

The setting, the province of Valla snuggled on the border of Milda and Kasuria. Civil unrest is abundant as local nationals fight over land once owned by their ancestors but now being controlled by militant factions. This land has changed hands many times over the past century, a result of political and military turmoil. But the locals want their land back and are willing to fight for it.

A group of multi-national peacekeepers arrives and sets up camp. Their job — keep the peace. To make all of the involved parties take a step back, rethink their options. Their primary weapon is diplomacy. Some carry guns, but others carry food and yet others bandages and medicine in their attempt to heal the wounds of a country in conflict. But their first line of defense is tact.

They tend to the children, elderly, sick, hungry and wounded. They help negotiate food, supply and medical deliveries. They are civilians, military and government employees. They are Estonian, Swiss, Finnish, Norwegian and Swedish. They are Partnership for Peace (PfP) personnel taking part in the kind of operation few people experience. The type of operation few military and emergency agencies can train for. They are taking part in a Peace Support Operation (PSO).

Actually, the scenario is part of a PSO exercise.

This scenario could be used in Exercise VIKING 01 in November 2001 to train peacekeepers in a variety of peacekeeping activities. The PfP exercise will bring together military and civil police and civil emergency agencies with the goal of better understanding how these agencies can work together more efficiently and effectively.

Commercial Resources

Continued from p. 10

The Air Force Agency for Modeling and Simulation (AFAMS) has recently created a help desk for Air Force M&S issues. Contact the help desk at DSN 970-5959 or online at M&S_Info@afams.af.mil.

For more information

For a complete online listing and addresses for all systems participating in the MSRR system visit <http://www.msrr.dmsi.mil/SiteMapContent.htm>.

Planning and training for this type of exercise has been difficult in the past. But with the help of the Joint Forces Command (JFCOM), the Swedish PfP Training Centre, and the Modeling and Simulation Information Analysis Center's (MSIAC) M&S University, PfP organizations will be able to prepare exercise planners and participants and host this distributed exercise which is aimed at increasing multi-national cooperation, interoperability and PSO awareness.

With the guidance of JFCOM, the Swedish Wargaming Centre and PfP experts, MSIAC's M&S University developed a two-day Computer Assisted Exercise (CAX) workshop which was delivered at the Swedish PfP Training Centre in Sodertalje, Sweden, prior to the initial planning conference for Exercise VIKING 01. The course was in support of a Memorandum of Understanding between the United States and the Government of the Kingdom of Sweden. The workshop accommodated participants from multiple Partnership for Peace countries.

The goal of the two-day workshop was to "Build a cadre of defense and military professionals with expertise in a variety of planning skills" who would become the foundation for experienced exercise planning staffs. It was designed to familiarize participants who, until attending the workshop, had little or no experience planning and executing computer-assisted exercises.

Workshop topics included determining training objectives, exercise issues, design and management; data collection and data base building and management techniques.

Also included was the "Road to StartEx" session, which covered how to get from the initial planning conference, via complex coordination efforts and other planning conferences, to the start of an exercise.

Workshop participants came away with brand new skills and immediately began the VIKING 01 Initial Planning Conference. With a better understanding of computer-assisted exercises and the planning and execution process, participants worked more efficiently and effectively through every element of the IPC.



M&S Journal Online



Looking for more news and information about DoD M&S?
Visit the MSIAC's "M&S Journal Online" at
<http://www.msiac.dmsi.mil/journal/>

Interested in learning about Modeling and Simulation?

Register now for the M&S Staff Officer Course (MSSOC)!

Upcoming courses:

- 11-14 Dec 00, Orlando, FL
- 29 Jan-1 Feb 01, Norfolk, VA
- 26 Feb-1 Mar 01, Alexandria, VA
- Mar 01, Korea Battle Simulation Center, Seoul, Korea
- 2-5 Apr 01, Alexandria, VA
- 10-13 Sep 01, Alexandria, VA
- 5-8 Nov 01, Alexandria, VA
- Dec 01, Orlando, FL

Join over 1,200 MSSOC alumni from DoD, industry, academia, and allies who have attended the MSSOC and learned about M&S in DoD.

No registration fee!

REGISTER TODAY at www.education.dmsi.mil



Mark Crooks, left, briefs Uzbeki MoD Kodir G. Gulomov, center, on MSIAC services and support.

MSIAC briefs Uzbekistan Minister of Defense in October

By David Wray
M&S Information Analysis Center

Responding to a request from the Office of the Secretary of Defense, the Modeling and Simulation Information and Analysis Center (MSIAC) briefed Minister Kodir G. Gulomov of Uzbekistan on services and support available from the MSIAC.

Minister Gulomov was in the U.S. in late October to discuss possible assistance in reforming Uzbekistan's military forces to better suit their emerging needs. Uzbekistan declared its independence from the former Soviet Union in 1991 and is interested in reshaping its armed forces to defend against insurgents and promote regional stability.

The briefing presented by MSIAC Director Phil Abold covered the MSIAC's capabilities and experience with U.S., NATO and Partnership for Peace modeling and simulation (M&S) efforts, as well as a broad exchange of ideas on how best to employ M&S.

Minister Gulomov, who holds doctoral degrees in physics and economics, demonstrated keen insight into M&S applications, benefits and limitations.

Your one-stop shop for M&S information and assistance!



The MSIAC is a
Department of Defense Information Analysis Center
sponsored by the
Defense Technical Information Center
and the
Defense Modeling and Simulation Office.

Its mission is to assist DoD activities in meeting
their M&S needs by providing scientific, technical, and
operational support information
and services.

Contact the MSIAC at (888) 566-7672 or by e-mail at
msiac@msiac.dmsomil

ODDR&E / DMSO
Office of the Secretary of Defense
Washington, DC 20301-3040

HLA MoA

Continued from p. 1

"While further technical challenges lay ahead," he added, "this agreement will facilitate cooperative and complementary solutions that further enhance and broaden the uses of the HLA."

Gansler directed each of the participants in the MoA to "aggressively transition their simulations to the HLA in the most expeditious and effective way, consistent with their requirements and resources." He tasked the EXCIMS to monitor the Department's progress in transitioning to the HLA and inform him if the commitment wavers.

Each DoD component was directed to report its HLA transition progress as of Dec. 31 to the Defense Modeling and Simulation Office, which serves as the EXCIMS Secretariat, by Jan. 15.

A copy of the MoA is available in .pdf format on the DMSO Web site at <http://www.dmsomil/>.

Points of contact for the MoA are Navy CAPT David C. Johnson, DMSO Deputy Director, at (703) 998-0660, djohnson@dmsomil, and R. J. Mills at (703) 824-3410, bobmills@dmsomil.

ASK DMSO • ASK@dmsomil

Have a question about the DMSO, its programs or DoD M&S policy, but don't know who to call? Send your query to **ASK@dmsomil**. We'll sort it out, send your question to the right people and get you an answer.